Digital Weather Services

Vision

To meet customer and partner needs for high-quality, accessible, and reliable digital climate, weather and weather services.

Concept of Operations

NWS Digital Services provide environmental information in digital form, from where technology can be leveraged. By employing digital technology, the NWS is revolutionizing the way weather information is produced, accessed, and analyzed.

The National Digital Forecast Database (NDFD) is the primary portal for accessing this seamless national mosaic of NWS forecast information.

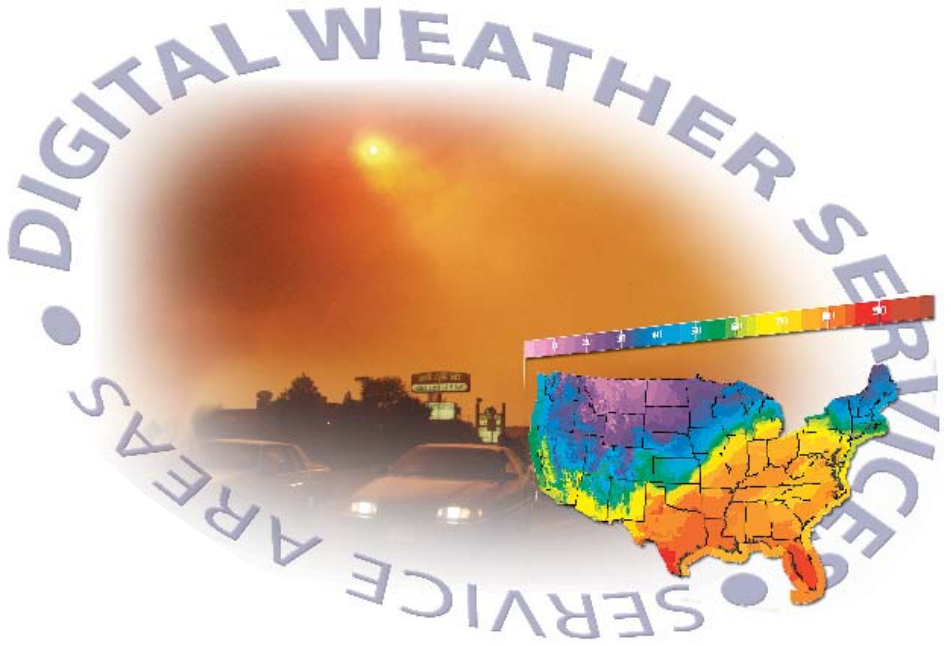
Forecasters at local NWS offices use NCEP guidance, and the latest technology to issue their forecasts as a high-resolution database. From this digital data set, products are generated in multiple formats, locally and centrally, by the NWS, its partners, and customers.

The FY 05 plan for digital services focuses on making NDFD grid elements official products, and gathering and integrating requirements and feedback from our customers.

For more information visit http://www.nws.noaa.gov/ndfd.

Customer and Partner Requirements

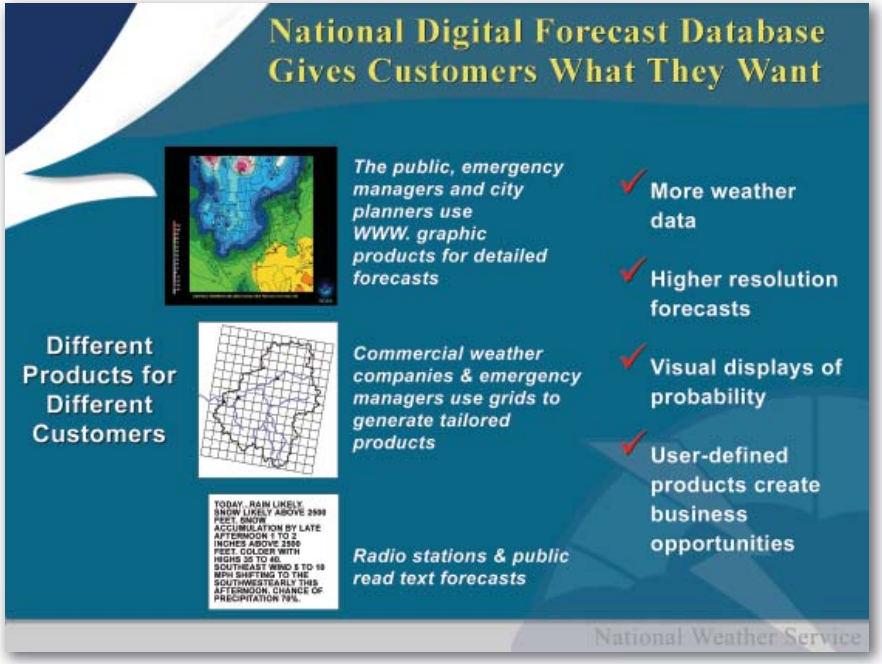
- ✓ Provide timely and consistent weather information.
- ✓ Deliver information in a variety of formats.
- ✓ Generate higher temporal and spatial resolution of weather information.
- ✓ Provide support for weather enterprise.
- ✓ Allow easier access to dissemination systems.
- ✓ Establish a digital services list server to facilitate communication.
- ✓ Follow effective change management procedures for implementing experimental and official products.



Link to Science and Technology Infusion Plan

Visionary science and technology will support digital database modifications through the integration of observing systems, improved forecast preparation applications, and expanded data coverage. Future database content and functionality will include:

- ✓ Probabilistic information
- ✓ Observations
- ✓ Hazardous weather information
- ✓ Analyses of records



Overview of NDFD capabilities

- ✓ Historical data
- ✓ Increased resolution (horizontal, vertical, and temporal)

Product and Service Changes

Most traditional, text-based NWS forecast products will be generated from the weather element grids produced by local NWS offices. The initial set of experimental grids includes the following forecast and derived elements:

- ✓ Maximum temperature
- ✓ Minimum temperature
- ✓ 12-hour probability of precipitation
- ✓ Sky cover
- ✓ Weather
- ✓ Surface temperature
- ✓ Wind direction and speed
- ✓ Quantitative precipitation forecast
- ✓ Dewpoint
- ✓ Significant wave height
- ✓ Snow accumulation

Science and Technology Requirements

- ✓ Employ Interactive Forecast Preparation System (IFPS) grid editing tools primarily developed at the local offices and used in the creation of NDFD forecast grids.
- ✓ Use collaboration tools at the forecast offices and NCEP to exchange information about the meteorological situation.
- ✓ Develop "smart" tools (algorithms that derive or modify weather elements) for quality assurance.
- ✓ Employ Internet XML-based Web services, designed to provide computer application and integration into NWS data sets using commonly accepted internet data interchange formats.

Milestones by Quarter

Customer and partner feedback on experimental grids will be continually evaluated during FY 05.

1st Quarter

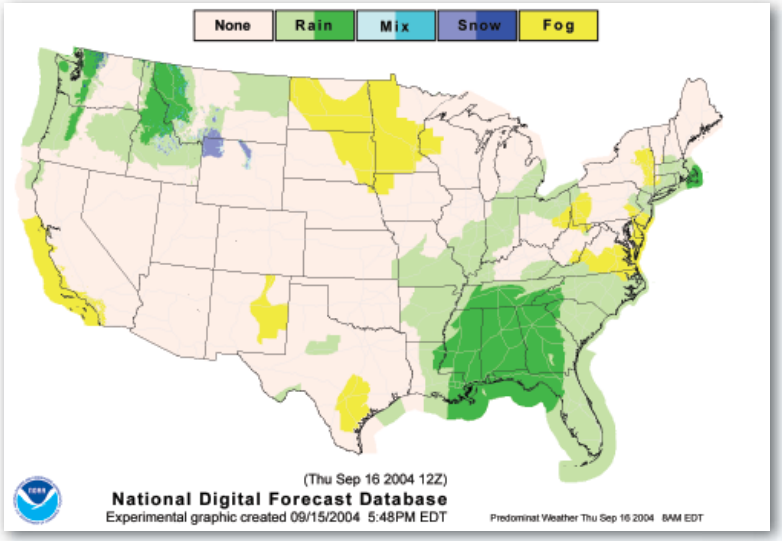
- Release initial set of official NDFD weather elements.
- Implement a nationally standardized local interface for NDFD graphics.
- Print and distribute *NWS Digital Services Operations Concept* to partners in government, industry and academia.
- Transition from Operational Readiness Demonstration (ORD) to Initial Operating Capability (IOC) for the NWS Pacific Region.
- Conduct regional digital services forums.

2nd Quarter

- Conduct regional digital services forums.
- Release experimental Relative Humidity (RH), and Apparent Temperature grids.

3rd Quarter

- Release additional NDFD grid elements as official NWS products.
- Conduct regional digital services forums.



NDFD Weather Forecast Map showing national weather conditions during the landfall of Hurricane Ivan.

4th Quarter

- Release experimental Wind Gust, Max Quantitative Precipitation Forecast (QPF), Marine Visibility, and Swell Height and Direction grids.
- Transition from ORD to IOC for the NWS Alaska Region.

Additional new product information is available at http://www.nws.noaa.gov/os/notification/tin04-18ndfd_update.txt.

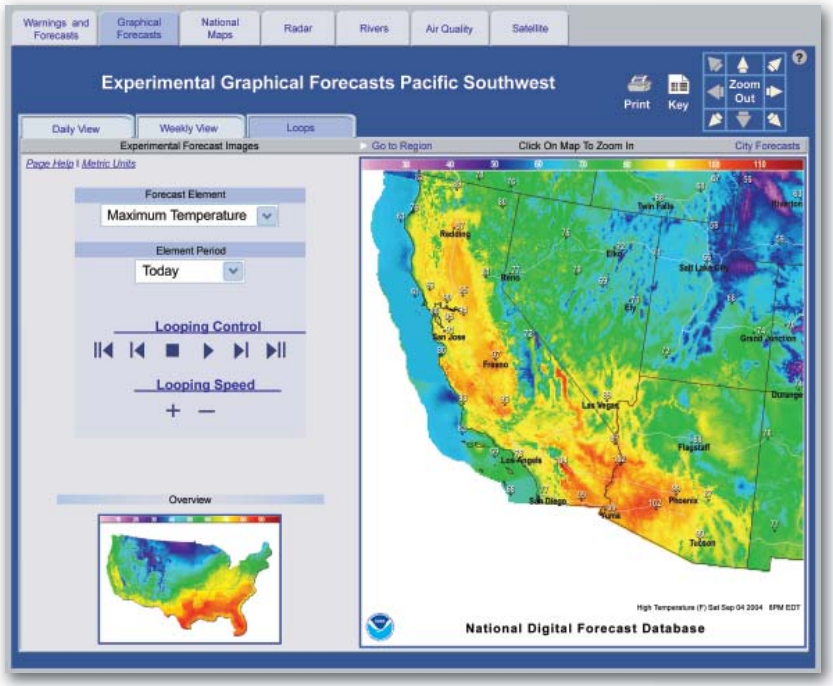
Integrated Requirements

The long-range digital services goal is a stable technology path that integrates observations, forecasts, and warnings into an environmental digital database of climate, weather, and water information.

Outreach

New information on the digital service program will be shared at the following venues:

- ✓ NWA and AMS meetings and conferences.
- ✓ IAEM and NEMA annual conferences.
- ✓ NWS partners workshops.
- ✓ National Hydrologic Warning Council (NHWC) meetings.



NDFD Pacific Southwest Maximum Temperature Forecast Map.

Verification

While a gridded verification system is being developed, the initial NDFD verification will consist of a nearest grid point-based scheme and verification of selected NDFD-based/generated alphanumeric products. This includes an automated daily forecast critique process, which will continue to be used in field offices.

NWS will expand the point-based verification beyond Model Output Statistics (MOS) guidance points to include surface observation points.

Regional Initiatives

Alaska

- ✓ Begin second ORD for IFPS.
- ✓ Transition from ORD to IOC.

Pacific

- ✓ Transition from ORD to IOC.

Southern

- ✓ Convert data to NetCDF format on regional server, then to Gridded Bianary 2 (GRIB2) on NDFD central server.

Contact Information

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